



OBJECT ORIENTED PROGRAMMING

Pointers

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Introduction

- Datatype used to store address rather than data
- Allows
 - Direct memory access
 - Indirect memory access
- & (address) operator is used to assign address
- * symbol represents pointer in declaration
- It provides
 - an ease to access data elements such as arrays or strings
 - mechanism to implement several data structure algorithms
 - technique in functions when multiple values are required to be returned
 - methods to reduce program complexity in terms of space
 - the use of dynamic memory
 - Many more...



Pointers for dynamic memory

- A program uses two memory types for the program:
 - Static: Already known by compiler, reserved during loading of program
 - Dynamic: Decided during execution, reserved with help of OS
- A block of memory can be allocated and de-allocated with help of “*new*” and “*delete*” operator
- *new* operator requires the type and size of memory to allocate and returns its memory address after performing task
- For de-allocation, *delete* operator requires the address of block of memory

○ e.g

```
int *ptr;  
ptr = new int[10];           //dynamic array  
delete[] ptr;
```



Dynamic Memory Objects

- Objects of the classes can also be created in same way
 - e.g.
A *Obj;
Obj = new A;
delete Obj;
- The attributes or methods of a dynamic object can be called with help of class pointer using -> “pointer-to-member” operator
 - e.g.
Obj ->show();



Questions

